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**MARITIME HOMELAND SECURITY AND DEFENSE:  
DEVELOPING A BASELINE CONCEPT OF OPERATIONS**

**by**

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**A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

**Signature: \_\_\_\_\_**

**23 April 2008**

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## **Abstract**

*Maritime Homeland Security/Defense: Developing a Baseline Concept of Operations.*

The missions of Maritime Homeland Security/Defense are hardly defined beyond the simple meanings of the words. Since 9/11, the danger of a maritime terrorist attack on the United States has become very real, yet little doctrine exists specifying the roles and responsibilities of services and agencies participating in the effort. This paper explains the difference between Maritime Homeland Security and Defense and how the different missions should be viewed. This paper outlines how a maritime threat evolves and examines the maritime domain in order to understand how best to use assets to accomplish the mission. Finally, this paper emphasizes the necessity for established commands and communication networks.

# **INTRODUCTION**

As stated in the National Strategy for Maritime Security, “The maritime domain in particular presents not only a medium by which [adversaries] can move, but offers a broad array of potential targets that fit the terrorists’ operational objectives of achieving mass casualties and inflicting catastrophic economic harm.”<sup>1</sup> While a maritime threat may seem to only directly affect the coastal population, the potential economic effects would actually ripple, not only through the U.S., but throughout the world. To counter a threat that can take on many forms, travel throughout the globe without crossing a border, and attack anywhere along thousands of miles of coastline is a daunting challenge. This challenge will only be met through a Maritime Homeland Security/Defense (MHLS/D) Concept of Operations (CONOPS) incorporating a series of coordinated preventative efforts applied throughout the maritime threat evolution, from embarkation to debarkation/attack. An adequate MHLS/D CONOPS must utilize joint and coalition forces and agencies to address the broad range of maritime threats.

## **MARITIME THREATS**

### **U.S. VULNERABILITIES**

As a result of globalization and world geography, specifically that salt-water covers over two-thirds of the world’s surface, immense maritime trading networks span the vast ungoverned ocean areas. U.S. involvement in the maritime trading network is evident in that, according to Lloyd’s MIU, vessels (trade and passenger) made over 100,000 port calls in the U.S. in 2007.<sup>2</sup> While some of those port calls were made by vessels coming from another

U.S. port, a large majority of the visiting vessels embarked from one of the thousands of commercial ports throughout the world. In addition to commercial vessels, hundreds of thousands of small fishing and recreational vessels clutter the U.S. littorals while millions clutter the North and South American littorals. A majority of the small vessels operating in the U.S. littorals are domestically owned and operated; however, even small vessels are capable of reaching our coasts from beyond our borders. Any one of these vessels, commercial or otherwise, arriving from foreign ports has the potential of carrying terrorist persons or cargo destined to attack the U.S. population, economy, or environment.

As of July 2006, in the U.S., approximately 128.7 million people live in the coastal counties (not including the Great Lakes)<sup>3</sup> and are directly vulnerable to a maritime attack, particularly from Weapons of Mass Destruction (WMD). As stated in the National Strategy for Maritime Security, “WMD issues are of the greatest concern since the maritime domain is the likely venue by which WMD will be brought into the United States.”<sup>4</sup> While the WMD threat is generally the most feared, terrorist use of WMD is not necessary to deliver an effective attack against the population. For example, a large vessel loaded with powerful conventional explosives or an otherwise normal shipment of liquefied natural gas (LNG) detonated in port can also cause catastrophic damage. In addition, attacks on ferries and cruise liners can result in very significant casualties, as well as damaging maritime transport and tourism industries. These types of attacks do not even require explosives. Terrorists can use a vessel to ram another or conduct a hijacking. Unfortunately, the types of attacks listed above are just a sample of the various methods available to terrorists to directly attack the U.S. population via the maritime domain.

Besides the direct threat to the population, the U.S. and global economy is also directly vulnerable to attack. For example, in 2006, the ports of Los Angeles and Long Beach together processed \$305.2 billion in total foreign trade<sup>5</sup>, averaging over \$835 million in foreign trade each day. The existence, or the perceived existence, of even a single mine could be a threat sufficient to disrupt or shut down these ports. This action would directly result in a major blow to the economy. This scenario also demonstrates that an attacker does not require WMD, high-explosives, or even sophisticated weaponry to accomplish a catastrophic attack... and nearly all types of vessels can carry mines.

An additional U.S. vulnerability to terrorist exploitation is that of an environmental attack. These types of attacks, for example, could target off-shore drilling platforms, coastal pipelines, or oil/chemical tankers. Environmental damage from such an attack could directly affect marine life, beaches, water supplies, or spread hazardous pollutants. This type of attack would also have second and third-order effects on both the population and economy as well. As stated in the National Strategy for Maritime Security, “Intentional acts that result in environmental disasters can have far-reaching, negative effects on the economic viability and political stability of a region.”<sup>6</sup>

## **TERRORIST SUSCEPTIBLE PORTS AND WATERS**

Since terrorists exist world-wide, ports become more susceptible to terrorist exploitation as either the distance from terrorist safe havens decreases or the size of the port (in traffic) increases. Simply put, the closer terrorists can safely operate to a port, the higher the chances of them being able to access that port. Also, the more traffic a port processes,

the less attention can be given to individuals and cargo. Ports without adequate security measures are also susceptible, regardless of their location or traffic.

Similar to ports, waters are also more susceptible to terrorist exploitation near terrorist safe havens or in areas of increased traffic. One area that fits this description is the water in and surrounding an archipelagic nation in which there are islands beyond the control of the government (i.e. Philippines and Indonesia). Also, the littorals of failing or failed states are susceptible since those states are potential terrorist operating areas. Concerning areas with higher traffic, the world's chokepoints provide another area susceptible to terrorism. The increased traffic from the geographic bottlenecks provides terrorists with more targets that receive less attention from encountered patrols.

## **DEFENDING THE HOMELAND – ASPECTS OF MHLS/D**

### **HOMELAND SECURITY AND DEFENSE IN THE MARITIME DOMAIN**

On December 21, 2004, President Bush signed the National Security Presidential Directive-41/Homeland Security Presidential Directive-13, “[underscoring] the importance of securing the Maritime Domain, which is defined as ‘All areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterway, including all maritime-related activities, infrastructure, people, cargo, and vessels and other conveyances.’”<sup>7</sup> These Presidential Directives led to the development of the National Strategy for Maritime Security and eight supporting plans to support the strategy.

The National Strategy for Maritime Security outlines five strategic actions necessary to achieve Maritime Security: “Enhance International Cooperation,” “Maximize Domain Awareness,” “Embed Security into Commercial Practices,” “Deploy Layered Security,” and



“Assure Continuity of the Marine Transportation System.”<sup>8</sup> While the first four actions are directly applicable to MHLS/D and the response to a threat, the latter action deals with response from an accomplished attack and will not be further addressed. Also, while the details of each action are outlined in the source, ‘enhancing international cooperation’ and ‘embedding security into commercial practices’ are supporting elements of ‘maximizing domain awareness,’ specifically Maritime Domain Awareness (MDA).

Similar to the five strategic actions of the National Strategy for Maritime Security listed in the previous paragraph, its eight supporting plans can also be generalized into the three categories: achieving/maximizing MDA, responding to a threat, and damage mitigation/response from an attack. Again, the latter category implies that the attack has been accomplished and will not be discussed further. The former two categories, achieving/maximizing MDA and responding to a threat, form the basis of MHLS/D.

#### **MARITIME HOMELAND SECURITY: ACHIEVING MDA**

Ideally, obtaining absolute MDA would guarantee MHLS/D by providing the knowledge of the crew, cargo, location, history and intentions of every ship sailing to the U.S. Unfortunately, due to the number of ships/containers, ports, routes, and the expanse of the oceans, absolute MDA is not possible. A thorough and real-time analysis of actual MDA, and more appropriately the known deviations from absolute MDA, permits the identification of threats and vulnerabilities. By comparing shipping that arrives to the U.S. before crew/cargo/route screening to that of shipping screened overseas, shortfalls can be recognized and addressed while vulnerabilities are compensated. An example of a compensating action is the constant monitoring of the Strait of Gibraltar. By monitoring this

chokepoint, all shipping from the Mediterranean, including that from the Middle East and Africa via the Suez Canal, destined for the U.S. east coast, can be located, identified, and tracked. Since the mission to maximize MDA is therefore a constant effort, just as achieving Homeland Security is a constant effort, this process will be referred to as MHLS.

## **MARITIME HOMELAND DEFENSE: INTERDICTING A THREAT IN PROGRESS**

While the MHLS efforts to maximize MDA populate the Common Operating Picture (COP) and other databases with real-time maritime data, a different effort is required to utilize search platforms and the MDA products to aggressively locate and identify threat vessels. These efforts, in a way, are similar to the MHLS efforts in countering recognized shortfalls and vulnerabilities. The difference between this mission and that of MHLS, however, is that now the efforts are focused on locating and interdicting a threat vessel that has eluded the on-going efforts of MHLS and reached the open-ocean. Not only does this imply that an actual threat vessel is known or perceived to exist, the objective is also complicated by the threat vessel having avoided detection in the foreign littorals. Since the presence of a real or perceived threat introduces an amount of danger, the mission transitions from MHLS to MHL<sup>9</sup>. The MHL mission will continue until the threat is interdicted or the intelligence indicating a threat is proven to be false (i.e. a threat vessel does not exist).

## **PHASES OF A MARITIME THREAT**

As a maritime threat evolves, from start to finish, there are three distinct stages in which it will progress: efforts prior to leaving the port of embarkation, movement to the target or port of debarkation, and actions following debarkation. The first stage includes

planning the attack, preparing the attack materials, and loading the attack materials onto a vessel bound for the U.S. The second stage commences when the vessel is at sea in the littorals, continues through open-ocean transit, and culminates in the littorals as it approaches the target or port of debarkation. If the vessel does not transit the open ocean, such as a coastal merchant or ferry, the open ocean portion of this stage will not apply. The final stage involves the unloading of the attack materials from the vessel for follow-on transport to the target. If the attack occurs while the attack materials are onboard the vessel, then only the first two stages apply. Understanding these stages, and more importantly, understanding the best use of assets available to identify, locate, and interdict the threat during these stages is essential to forming both MHLS and MHL D CONOPS.

#### **PRIOR TO LEAVING PORT:**

Given the vast expanse of the world's oceans and the enormous amount of maritime traffic, locating a threat vessel at sea is a daunting challenge. Currently active programs, such as the Container Security Initiative (CSI), Secure Freight Initiative (SFI), and Customs-Trade Partnership Against Terrorism (C-TPAT)<sup>10</sup>, as well as the Megaports Initiative<sup>11</sup>, are designed to screen cargo (by various methods, for various materials) and enhance security on vessels embarking from ports with high-trade volume with the U.S. While these programs screen a majority of the U.S.-bound cargo and vessels, the ability to screen all U.S.-bound cargo remains impossible. These programs are neither available at all ports that process U.S.-bound cargo nor able to screen every parcel at the ports in which they are active.<sup>12</sup> The efforts are obviously beneficial to maximize MDA and 'narrow the field' of potential threat vessels at sea; however, the absolute prevention of a threat vessel from leaving port and

proceeding for the U.S. is impossible. Since the possibility exists for a vessel to get underway with a threat to the U.S. homeland, plans for further action are required.

## **LEAVING PORT – FOREIGN LITTORAL TRANSIT**

Due to the proximity to land, threats that have not commenced open ocean transit are susceptible to detection by many means not available after the vessel has left the littorals. A sample of the detection means that are only available at this stage are shore-based radars, coastal patrols/security, shore observers, and short/medium-range land-based aircraft. While these assets are also available when a vessel re-enters the U.S. littorals, at this point foreign sources will largely provide the detection capabilities. Certain relationships and information sharing abilities are therefore required with countries that are in a position to provide these services to the U.S. As an example, in July 2004, Singapore, Malaysia and Indonesia - and later Thailand - partnered to form the Malacca Strait Patrols to combat terrorism and piracy in this extremely busy maritime chokepoint.<sup>13</sup> This program consists of sea and air patrols, conducted by all four countries, and internet-based information exchange able to propagate real-time tracking databases.<sup>14</sup> The amount of maritime information collected by this program would be immensely valuable to the MHLS MDA efforts.

In addition to the foreign search platforms, and as evidenced in the Strait of Malacca example above, the concentration of maritime traffic in the littorals also results in an advantageous environment for maximizing MDA with forward-deployed U.S. assets. Prior to reaching the open ocean and dispersing along innumerable routes, littoral maritime traffic is largely concentrated near ports or corralled by geographic features. Even though many of these concentration areas exist, the ability for a single platform or asset to monitor maritime

traffic at any one of these areas is greatly enhanced over its abilities to monitor traffic in the open ocean. A prioritized list of high-traffic chokepoints and terrorist-susceptible ports can guide Sustained MHLS/D employment plans for forward deployed U.S. and allied assets. That being said, due to the singular nature of a vessel's transit, monitoring littoral concentration areas can only be effective prior to and during the threat vessel's passage through the area. While seemingly obvious, it is important to note that the potential advantage of monitoring these concentration areas will vanish if, either due to a reactive stance or insufficient resources, these areas are not constantly monitored.

## **OPEN OCEAN TRANSIT**

The most difficult phase to identify and locate a threat vessel is also normally the longest phase of its journey, the open ocean transit. Search capabilities in this phase are marginalized by the variety of embarkation and debarkation ports throughout the world, as well as a lack of route-restricting land masses. This combination results in countless shipping routes throughout the vast ocean areas. While maintaining the current level of MDA in the open ocean is extremely difficult, increasing MDA is even more challenging.

While any search asset can potentially increase MDA, the degradation of search capabilities in the open ocean may preclude the efficient use of anything but higher altitude, long-range, patrol aircraft. Even though flights with these aircraft can, and most-likely will, increase MDA, a cost-to-benefit ratio analysis of a mission to maximize MDA by searching the open ocean is unfeasibly high. This is especially true when no threat is known or expected to exist. In addition, the search capabilities of these assets are invaluable to the MHLS efforts in the littorals. In the resource limited world, MHLS use of any asset in the

open ocean would most likely lessen potential MDA by removing an asset from operations in the foreign littorals.

Opposed to MHLS efforts to maximize MDA with limited resources, if a threat is known or expected to exist, MHL D efforts will be subject to less resource restrictions. All efforts can and will be utilized to protect the homeland from attack. In this scenario, the use of assets to conduct inefficient open ocean searches may be supported by guiding intelligence or a surplus of assets required to monitor the U.S. littorals. Having a surplus of assets would most likely only be possible if detailed information is known of the threat, specifically the route or destination. In addition, when the objective is to interdict the threat at as far a distance from the U.S. coast, only locating that threat before it reaches the U.S. littorals will accomplish this aim. The greater benefit of early location results in a more attractive the cost-to-benefit ratio, but must still be balanced by the risk management assessment of using an asset inefficiently.

In addition to search inefficiency, weather and distance will also impact the commander's decision to commit resources to the open ocean. For example, a ship assigned to MHL D, operating in the U.S. littorals, and threatened by inclement weather could most likely find a safe haven close to the port or targets it is assigned to protect. At this point, the ship's ability to monitor the littorals may be degraded, but the ability to act as point defense remains. In contrast, a ship operating in the open ocean may have to transit far from her assigned operating area before escaping a storm. Depending on where the storm originates, the ship may be forced to further increase its distance from the U.S. littorals, potentially completely removing the ability to interdict if the threat is discovered elsewhere. In addition,

while a storm must be relatively powerful to necessitate the relocation of a ship, even a mild storm may preclude ship operations, such as the launch and recovery of aircraft.

## **U.S. LITTORAL TRANSIT – APPROACHING PORT OR TARGET**

Similar to searching in the foreign littorals, the amount and type of assets that can assist in the search efforts of the U.S. littorals increases by multiple orders of magnitude. Fortunately, much fewer international relationships required at this point. Partnerships with Canada and Mexico alone would greatly enhance U.S. maritime border protection from coastal threats. Unfortunately, a threat vessel advancing to this stage may only have hours remaining in its voyage before reaching its target or port. If a threat vessel is suspected to reach the U.S. littorals, the response time now required to interdict the threat at sea is severely shortened. Also, since the overarching objective of MHL D is to prevent an attack on the homeland, and since without specific intelligence, it cannot be assumed that the vessel must offload crew/cargo to perform the attack, the vessel must be interdicted prior to reaching its port or target.

This being the last phase of the threat vessel's voyage, and the last chance for the MHL D mission to prevent an attack, U.S. Government and contracted asset availability should be virtually unlimited insofar that other critical U.S. maritime capabilities are not forsaken. "...The United States will use all instruments of national power and influence... to achieve our goals to prevent and disrupt terrorist attacks; protect the American people, critical infrastructure, and key resources; and respond to and recover from incidents that do occur."<sup>15</sup> The MHL D Commander should have access to all available search and interdiction platforms in the region during this phase.

In addition to the increased forces, the spatial characteristics of the littorals also facilitate the locating of a threat vessel. As any vessel approaches the U.S. coastline, its destination and timeline become more apparent, permitting the verification of the 96-hour Advanced Notice of Arrival (ANOA). While the ANOA, as well as a vessel's current location, course, and speed, may not reflect the true intentions of a vessel, intelligence agencies may be able to compare this data to a list of likely coastal targets to clear or designate a vessel as a potential threat. Likewise, vessels arriving in such a manner that places them outside the normal operating parameters of vessels for their size and type will alert the surveillance net to a possible problem and act as a 'red flag.'

While the U.S. littorals may not contain any chokepoints as constricting as the Straits of Gibraltar, Hormuz, or Malacca, several geographic features may ease searching efforts. For example, the entire Gulf of Mexico is only accessible from two waterways less than 150nm wide, one between Florida and Cuba and the second between Cuba and the Yucatan Peninsula. These waterways can be monitored with minimal assets compared to those needed to search the entire Gulf. Another example, on the Pacific Coast, the great circle route from Southeast Asia to Alaska, Canada, or the Pacific Northwest will cause the threat vessel to transit through, or near, the Aleutian Islands and Southern Gulf of Alaska. Even if the threat vessel's target is in Alaska - in this scenario, Anchorage or Valdez - the threat vessel must transit multiple days on this long, littoral route. If the threat vessel's target is in the Pacific Northwest, its littoral transit will begin over four days from the target. This extended littoral transit provides the MHLDC commander an advantage over searching in the open ocean.



## **AFTER REACHING A U.S. PORT**

Once a threat vessel enters port, assuming that the threat's objective includes offloading crew and/or cargo, only a few, final protective measures remain to protect the homeland. These currently existing measures, again largely headed by CBP, are once again a function of MHLS. Also, at this point, the MHL D efforts for this particular vessel have expired or transitioned to HLD efforts within the borders. If the threat vessel has not been identified, its in-port status may also not be known and MHL D efforts would continue. These efforts will continue either the threat vessel is located and interdicted, or the existence of a threat vessel at sea has been refuted.

## **RECOMMENDATIONS**

### **MHLS/D COMMANDS**

The concept of a 'Maritime NORAD' evolved after 9/11 and once the dangers of maritime terrorism became more apparent. The concept, however, is widely viewed as problematic since the mission of NORAD involves "aerospace warning and aerospace control"<sup>16</sup> and 'control' of the maritime domain is impossible. Despite the challenge, "The National Maritime Intelligence Center (NMIC) [has been designated] the *central point of connectivity* for MDA."<sup>17</sup> The stated mission of NMIC is "to provide 'one-stop shopping' for national level maritime intelligence."<sup>18</sup> While the intelligence 'reach-back' capability in NMIC assists individual units fulfill their MHLS mission, a designated MHLS command is necessary to unify and direct the efforts of all MHLS participants. This command would be comprised of elements of each of the participating MHLS agencies, services, and allies, and located at the MDA focal point (currently at NMIC). The MHLS commander would report

to the Secretary of Homeland Security. NMIC would be the intelligence center of MHLS Command.

To support MHLS Command, and execute MHL D missions, a MHL D command is necessary for each U.S. coast. Like MHLS Command, the MHL D-West and MHL D-East commands would be comprised of elements of all MHLS participants (to include Canada and Mexico). Rather than being subordinate to MHLS Command, these MHL D commands will normally be subordinate to the USCG Commander Pacific Area (COMPACAREA) and USCG Commander Atlantic Area (COMLANTAREA). During MHLS operations, i.e. no specific MHL D mission, these commands will support the MHLS Command in directing the MDA efforts for their parent command and respective coast. During MHL D operations, these commands will serve as the operational commander and report to either USCG or USN theater commands. The aim of the MHL D command is to have all services and agencies, and associated lawyers, already embedded into the command so that the commander can immediately take charge of the interdiction efforts. The command will have detailed knowledge of their respective area of responsibility and will develop and validate CONOPs to counter the range of maritime threats. Also inherent in this command are the facilities and communications required to execute command of the operation.

## **MHLS/D COMMUNICATIONS**

The National Plan to Achieve MDA currently tasks the DHS and DOD to, “Establish a network-centric, near-real time virtual information grid that can be shared, at appropriate security levels, by Federal, state, local, and international agencies with maritime responsibilities. This national maritime common operating picture will be the primary means

of dissemination for MDA information.” This task has a superb goal of eliminating the current information sharing seams, however the endstate is lacking.

While a national maritime common operating picture will be a very important tool in MHLS efforts to maximize MDA, eliminating the information sharing seams also provides a capability for each participant to communicate with each other. Since an amount of the information shared will have restricted or classified components, by design this system will already incorporate certain security measures. Once these security measures are in place, limiting this communications ability to sharing MDA data for MHLS would be a tragic underutilization. If fully utilized, this system could also provide direct voice and electronic communications between participants, from the strategic to the tactical levels of command. Since the task also includes international organizations, a communications pathway with all MHLS partners can be established. Since the MHL mission is reactive and preparation time may be extremely limited, having an existing communications structure in place between organizations and allies will be a direct and crucial benefit to the MHL commander.

## **MHLS EFFORTS IN FOREIGN PORTS AND LITTORALS**

While the DHS/CBP and DOE programs and initiatives previously discussed have already marked an increase in MDA, only the Container Security Initiative (CSI) pre-screens cargo for conventional threats. In addition, these programs can only screen cargo that is destined for the U.S. These factors result in large MDA gaps concerning potential conventional threats and WMD threats on ships not destined for the U.S. Knowing that the U.S. has U.S.-bound radiation detection programs, it is not unrealistic to consider that

terrorists may plan on shipping the WMD to Canada, Mexico, or a South American country as an intermediate destination.

These challenges notwithstanding, the DHS/CBP and DOE must continue to develop and expand their programs throughout the world. Since maritime threats are a global problem, developing partnerships with the customs agencies of Canada, Mexico, and South American countries, as well as expanding our pre-screening programs and initiatives to these countries, will aid in further reducing global vulnerabilities

Unfortunately, developing these partnered relationships with every North and South American country is currently unrealistic. While every partner gained will increase MDA, MHLS will have to rely on other efforts to reduce vulnerabilities. As reasoned previously, monitoring foreign littorals can provide this affect. Assets must be assigned the MHLS mission to constantly monitor high-concentration and troubled areas in the foreign littorals. This blunt-force (monitoring) approach will not prevent a threat vessel from setting sail to the U.S., but the enhanced common operating picture will greatly assist MHLA efforts to interdict.

## CONCLUSION

Ongoing improvements in the realm of MDA include the development of a national common operating picture as well as the designation of an intelligence center for maritime data. These efforts will markedly improve the ability to fuse data and *increase* MDA; however, a designated command with assets and authority to direct and unify MDA efforts is necessary to *maximize* MDA. In addition to the development of systems aimed at producing a real-time common operating picture available for all MHLS participants, only through the

addition of a full voice and electronic communication package will MHLS participants be able to fully coordinate activities. This communications package is even more a necessity for the reactive MHL D missions that include joint, interagency, and coalition partners. Only through the improvement and expansion of current pre-screening programs and initiatives, as well as the vigilant surveillance of the foreign littorals, will MHLS efforts minimize MDA gaps. These minimized gaps will directly assist the efforts of MHL D and ultimately the protection of the U.S. Homeland.

## NOTES

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<sup>1</sup> U.S. Department of Homeland Security, *The National Strategy for Maritime Security*, (Washington, DC: DHS, September 2005), 3.

<sup>2</sup> Lloyd's MIU, "Port Calls – Top 20 Countries by Vessel Type 2007," <http://www.lloydsniu.com/lmiu/lmiustats.htm?action=graph15> (accessed 08 April 2008).

<sup>3</sup> U.S. Census Bureau, "Statistical Abstract of the United States: 2008," *Population in Coastal Counties: 1980 to 2006*, Table 25, 2008.

<sup>4</sup> U.S. Department of Homeland Security, *The National Strategy for Maritime Security*, 4.

<sup>5</sup> U.S. Department of Transportation, Maritime Administration, "U.S. Waterborne Foreign Trade by U.S. Custom Ports 2003-2006," 2006, [http://www.marad.dot.gov/MARAD\\_statistics/index.html](http://www.marad.dot.gov/MARAD_statistics/index.html) (accessed 18 April 2008).

<sup>6</sup> U.S. Department of Homeland Security, *The National Strategy for Maritime Security*, 6.

<sup>7</sup> U.S. Department of Homeland Security, *The National Plan to Achieve Maritime Domain Awareness for The National Strategy for Maritime Security*, (Washington, DC: DHS, October 2005), i.

<sup>8</sup> U.S. Department of Homeland Security, *The National Strategy for Maritime Security*, 13.

<sup>9</sup> This transition does not imply a change of agency leads from the DHS to the DOD.

<sup>10</sup> These are Customs and Border Protection (CBP) programs. More information is available at <http://www.cbp.gov>.

<sup>11</sup> This is a Department of Energy (DOE) – National Nuclear Security Administration (NNSA) initiative. More information is available at <http://nnsa.energy.gov>.

<sup>12</sup> Lists of ports involved in these programs are available at <http://www.cbp.gov> and <http://www.nnsa.energy.gov>.

<sup>13</sup> Singapore Ministry of Defence, *Launch of Trilateral Coordinated Patrols – MALSINDO Malacca Straits Coordinated Patrol*, (Singapore, 20 July 2004), 1.

<sup>14</sup> Singapore Ministry of Defence, *Inaugural Malacca Strait Patrols Information Sharing Exercise*, (Singapore, 28 March 2008), 1.

<sup>15</sup> U.S. Department of Homeland Security, *The National Strategy for Homeland Security*, (Washington, DC: DHS, October 2007), 13.

<sup>16</sup> North American Aerospace Defense Command, "About NORAD," <http://www.norad.mil/about/index.html> (accessed 17 April 2008).

<sup>17</sup> Ivan T. Luke, "D.O.D's Role in Maritime Homeland Defense and Security," U.S. Naval War College, August 2006, 4.

<sup>18</sup> Office of Naval Intelligence, "Our Mission," Office of Naval Intelligence, <http://www.nmic.navy.mil/mission.htm> (accessed 17 April 2008).

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